MOLECULAR DETECTION SYSTEMS UTILIZING REITERATIVE OLIGONUCLEOTIDE SYNTHESIS

ABSTRACT OF THE DISCLOSURE

The present invention provides methods for detecting the presence of a target molecule by generating multiple detectable oligonucleotides through reiterative enzymatic oligonucleotide synthesis events on a defined polynucleotide sequence. The methods generally comprise using a nucleoside, a mononucleotide, an oligonucleotide, or a polynucleotide, or analog thereof, to initiate synthesis of an oligonucleotide product that is substantially complementary to a target site on the defined polynucleotide sequence; optionally using nucleotides or nucleotide analogs as oligonucleotide chain elongators; using a chain terminator to terminate the polymerization reaction; and detecting multiple oligonucleotide products that have been synthesized by the polymerase. In one aspect, the invention provides a method for detecting a target protein, DNA or RNA by generating multiple detectable RNA oligoribonucleotides by abortive transcription.